PROCEEDINGS

U.S. ARMY TECHNICAL DATA WORKSHOP
03-05 DECEMBER 1997

HOSTED BY: **U.S. ARMY INDUSTRIAL ENGINGEERING ACTIVITY**
Rock Island, IL
U.S. ARMY MISSILE COMMAND
Redstone Arsenal, Huntsville, AL

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EXECUTIVE SUMMARY

The Army Technical Data Workshop was held at Redstone Arsenal, Huntsville, AL on 03-05 December 1996. The purpose of the Workshop was to establish a strategy for achieving reasonably consistent Technical Data (TD) practices throughout Headquarters, US Army Materiel Command (AMC) to optimize efficiencies and cost effectiveness.

Approximately 100 Government personnel from the PEO/PM offices, Commands and their activities and depots attended the two and a half day workshop. The Workshop format included a general session each morning and breakout sessions in the afternoon. Several distinguished speakers addressed the Workshop during the general session, including Dr. Kenneth Oscar, Deputy Assistant Secretary of the Army (Procurement), MG Beauchamp, Deputy Chief of Staff for Research, Development, and Acquisition, HQAMC and Ms. Linda Burgher, Office of the Deputy Under Secretary of Defense (Logistics) CALS, to name a few.

Each afternoon, the attendees participated in one of five working groups. The focus of the working groups included all aspects of TD generation, transfer, storage and use. The five areas addressed by the working groups included:

- Future Role of the Repositories - Chaired by Mr. John Bender and Mr. Paul Miskovich
- Acquisition Reform - Chaired by Mr. Phil Gilbert
- New Business Processes Utilizing Intelligent Data - Chaired by Ms. Carol Sitroon and Mr. Richard Uldrich
- Data Exchange - Chaired by Mr. John Montgomery
- The Role of Technical Data - Chaired by Mr. Mike West

The working groups were task to identify issues and actions needing further resolution and/or changes to AMC policy. The conclusions and recommendations of each group were presented to MG Beauchamp and the participants during the final general session.

Although each group addressed different areas and recommended specific actions to be taken specific to that area, several issues were raised by all working groups. They included the following:

- Data requirements should be consistent with acquisition strategy.
- Access to contractor formatted data is preferred with delivery to the Government at the end of contract.
- The role of Government repositories needs to be redefined, i.e., store data where it makes sense.
- The Government needs to standardize interfaces for exchange of data within Government and with industry.

MG Beauchamp commented that TD is a main line, integral part of acquisition reform in terms of life-cycle affordability and modernization through spares. In his opinion, the military must position itself to manage access and use of technical data in the future rather than cope as it is doing now. When asked what he saw for future actions by this group, he replied:

- Synthesize results of the group - possibly establish an IPT to study recommendations and develop a Master Plan
- Establish a timeline of short and long term goals
- Prioritize the goals and estimate funding requirements.

MINUTES OF THE ARMY TECHNICAL DATA WORKSHOP

Huntsville, AL *03-05 December 1996*

GENERAL SESSION - 03 December 1996

Opening Remarks

Mr. Ernst A. Young, Deputy to Commanding General, Missile Systems Command (MICOM), opened the meeting. He welcomed the workshop attendees to MICOM and emphasized the importance of the work that they were doing.

Mr. Gordon Ney, Industrial Engineering Activity (IEA), presented the opening presentation. He discussed the purpose, scope and agenda for the workshop. He asked each of the attendees to introduce themselves. A wide variety of disciplines were represented from the PEO/PM offices, Commands and their activities and depots. Mr. Ney concluded with administrative comments.

Mr. Ney turned the meeting over to Mr. Jim Knowles, Technical Manager for Standardization and Documentation, Headquarters, Army Materiel Command (HQAMC), to introduce Dr. Kenneth Oscar, Deputy Assistant Secretary of the Army (Procurement).

Acquisition Reform - Technical Data

Dr. Oscar discussed the Army's new philosophy - "fight with the stock on-hand, win the war quickly, and replenish in the years following the conflict." The new philosophy is the result of the changed threat and the Army's peacekeeping agenda. The Battle Labs at the Tank - Automotive Command (TACOM) are in the process of defining the size and mission of the Army.

In the past, the Army maintained superiority by buying new equipment. With the declining defense budget and exploding technology, this will not be possible in the future. The Army is looking at modernization and technology integration across all platforms as a means to retain its technological lead.

Dr. Oscar indicated that the Army is faced with a modernization challenge, i.e., the current replacement efforts are not keeping pace with obsolescence. Current efforts are under funded (modernization funding in down 15 percent), inefficient and take too long to complete. Dr. Oscar stated that the $10 Billion per year savings expected from the recent initiatives - acquisition reform, BRAC, and privatization, are expected to fund modernization in the future.

Dr. Oscar explained that acquisition reform is not new. It has only recently received the necessary support from the Office of the Secretary of Defense, Congress, and the White House. The emphasis of acquisition reform is to change procurement practices from a "rule-based" system to one of individual empowerment. He stated that under the rule-based system, the Government paid as much as a 20-30 percent premium.

The Army reform has included initiatives such as: changing requirements from military specification to performance specifications; credit card purchasing; consolidating contracting, using a center and satellite concept for contracting; contracting electronically, from bidding through letting the contract; multi-year contracting, modernizing through spares; and aggressively retiring old equipment, reducing the operation and support cost by 25 percent. Significant savings have been achieved on Army programs including the Javelin, Apache Long Bow, and M1A2 upgrade using the changed procurement practices.

The acquisition reform vision, according to Dr. Oscar, is to "Empower the acquisition workforce to provide better equipment to the soldier, faster and cheaper". The new strategy involves defining the outcome, taking action, and finally measuring the outcome.

Configuration Management in the New Environment

Ms. Linda Burgher, Office of the Deputy Under Secretary of Defense (Logistics) CALS, discussed the efforts to reduce the number of military specifications, following the guidelines of acquisition reform. She stated that MIL-STD-973, "Configuration Management" will be canceled and superseded by the industry standard, EIA/IS-649 "Configuration Management" August 1995, MIL-STD-2549, "Configuration Management Data" (for standardized formats for electronic data interchange), and the companion handbook, MIL-HDBK-61, "Configuration Management Guidance". Ms. Burgher reported on the current and future status of these documents.

The formal coordination of MIL-STD-2549 was completed in January 1996 and concurrence was received from all major industry associations, Department of Defense (DoD), and all Services except the Air Force. The approved comments will be incorporated into the master document by January. CALS plans an interim release following the CALS Office briefing to the Defense Standardization Improvement Council (DSIC) in February.

Ms. Burgher indicated that the product of using the standardized formats specified in MIL-STD-2549 will result in several key streamlining changes, i.e., less configuration management data deliverables, standardized configuration management data elements, no "contractual shall" statements, and the contractor will be exempt from all compliance responsibility if standard is invoked without tailoring.

MIL-STD-973 was scheduled for cancellation in June 1996. The cancellation was delayed pending completion of MIL-STD-2549. MIL-STD-973 can still be used on contract with a waiver through Component Acquisition Executive or the Milestone Decision Authority (MDA).

MIL-STD-61 is to be used for "guidance only". The handbook is currently in the draft format (http://www.magicnet.net/~nobel/eia/). The handbook will be formally coordinated.

EIA/IS-649 issued in August 1995 as an interim document, contains generic requirements derived from MIL-STD-973. The DoD Adoption Notice has been prepared and is in the approval process.

Acquisition Reform

Mr. Curt Morton, Mevatec Corporation, presented an overview of the Army's acquisition reform achievements. The Army has: simplified the process - changed the laws, moved to performance specifications, and partnered with industry; in transitioning to Force XXI - digitized the procurement process, enhanced the use of credit cards, internet, simulation and modeling; and reinvented the institution by streamlining requirements/budget process, reducing overhead and barriers, and sustainment. He emphasized the substantial cost savings have resulted from the use of credit cards. Additionally, the inventories have been reduced by delivery directly from the vendor to the user.

Mr. Morton discussed Alpha Contracting and the Integrated Process Team (IPT) approach to contracting when a procurement team is located at the Contractor facility.

He also discussed the move from military specifications by the year 2000 to commercial items. In today's infrastructure, only 13 percent of the items are purchased by commercial item description. This is expected to increase to 23 percent in the future. He emphasized that the goal was not to adopt a civilian specification as a Government specification - the idea is to utilize items available in the commercial market. Market research for commercial items is required for items over $100K.

Mr. Morton also discussed the significant changes resulting from the revised draft AR 70-1, Army Acquisition Policy. These changes include: the PEOs/PMs now have leeway to obtain matrix support based on best value; use performance specification in all solicitations; allow contractors to propose use of military specifications and standards; and establish a hierarchy of alternatives for new starts.

He closed with a discussion of the Single Process Initiative that promotes common production for military and commercial items at a contractor's facility. Mr. Morton stated that Rockwell, for the first time in 25 years, will use a common production line to produce both military and commercial items.

VPSCii - Understanding EDM and PDM Technology
(Mr. Chris S. Williams presentation was not available)

Future Role of the Repositories - *Chaired by Mr. John Bender and Mr. Paul Miskovich*

Mr. John Bender, Chief of the IMA Operations Division, Rock Island Arsenal and Mr. Paul Miskovich, TACOM Technology Advancement Team Leader, presented the workshop agenda and discussed the forum for workshop discussions. The result of the open discussion was to be a list of short and long term goals with specific action items to be completed. Mr. Bender and Mr. Miskovich presented several topics that they planned to use as a starting point for the workshop. They emphasized that any and all questions/comments would be discussed.

Acquisition Reform - *Chaired by Mr. Phil Gilbert*

Mr. Phil Gilbert, Configuration Management Chief, Javelin Program Office discussed the format, goals and focus for the workshop. He wanted a no-holes barred expression of opinions by the participants. He wanted topics discussed to include the needs of the total life cycles of a system, from the needs of the PEOs/PMs to the role of performance-based TDPs and specifications. The specific points to be addressed are the value and need for a detailed TDP (this point coming from a project that uses the TDP for insight and traceability purposes, to support technical dialogue and teaming, but has not released the TDP for traditional control); the problem with past TDPs, i.e., their association with excessive tiers of military specifications and standards and premature Government control; and current acquisition reform which includes both electronic data interchange and performance specification which paves a way for smart application of various types of electronic data, insight vs. oversight, and process based control.

He concluded with the following things for the participants to think about:
Redundancy in a time of less resources
Acquisition reform needed in Army structure
Reduced personnel and how to deal with this
Major Subordinate Commands (MSCs) and PEOs are not the enemy
Performance specification(s) are a means to initiate best value acquisition and institute smart control of critical requirements
Detail electronic technical data defines the product configuration(s)
The complement of both data types balance customer requirements with contractor design flexibility

New Business Processes Utilizing Intelligent Data -
Chaired by Ms. Carol Sitroon and Mr. Richard Uldrich

Ms. Carol Sitroon, Acting Division Chief of the Engineering Data Division,TACOM-Armament Research, Development, and Engineering Center (ARDEC) and Mr. Richard Uldrich, Chief of the CALS Office in the Logistics Readiness Center, Communications - Electronics Command (CECOM), presented the ten topics to be covered by the workshop. The number one topic, emphasized by Ms. Sitroon was to define intelligent data. They discussed the workshop goal, benefits and agenda.

Data Exchange - *Chaired by Mr. John Montgomery*

Mr. John Montgomery, Lead Engineer for AMC Engineering Data Management Systems (EDMS) Program Management Office at MICOM, discussed the workshop objective - "To establish a strategy for achieving reasonably consistent technical data practices throughout AMC to optimize efficiencies and cost effectiveness." He emphasized that automation is an enabler not an answer. In dealing with technical data, the numerous types of data and its users and the 30 years of accumulated (legacy) data must be considered. The major problem being that technology is evolving faster than business processes and automation. He concluded with a discussion of the focus of the workshop.

The Role of Technical Data - *Chaired by Mr. Mike West*

Mr. Mike West, Logistics Data Management Specialist in the MICOM Integrated Materiel Management Center's ILS/MANPRINT Office, made a few informal comments about the workshop and invited all those interested in the subject to join his group.

GENERAL SESSION - 04 December 1996

Opening Remarks

Mr. Gordon Ney opened the meeting with a few administrative remarks.

Future JEDMICS

Mr. John Montgomery discussed AMC EDMS initiatives: Aviation and Troop Command (ATCOM) BRAC EDMS; the future Configuration Management System; and joint JEDMICs Projects and the JEDMICS IPT. The discussion on JEDMICS included:

JEDMICS was replacing DSREDS

JEDMICS as AMC's technical data banker manages multiple types of data, including HPGL, STEP, Raster, IGES, etc.

JEDMICs open architecture is client/server based from optical storage to user access via PC

Test Migration - Facility Activities

JEDMICS Tool Set (Common data structure for all products of the tool set), i.e., tools that allow the technical community to use JEDMICS

Mr. Paul Behrens, Project Leader JEDMICS IPT, discussed SMART JEDMICS. He indicated that the follow-on emphasis will be to minimize new development. The plan is for the implementation to be facilitated by the IPTs.

Mr. Ken Slayton, Project Leader JEDMICS Tool Set, gave a demonstration of the features of the PC-JEDMICS and the Intranet interface.

Compact Disk Engineering Data Exchange (CDEX)

Mr. John Montgomery discussed the AMC CDEX initiatives: to provide an enabler to eliminate aperture cards by February 97 (per Gen Wilson); implement at six JEDMICS sites and five depots; and provide simple process for digital data input to JEDMICS from industry. He mentioned a recent validation test conducted between MICOM and the Defense Logistics Agency (DLA). Sixteen hundred images were transferred in 45 minutes from the JEDMICS output file system at MICOM to DLA JEDMICS in Richmond, VA.

STEP AP232 Technical Data Packaging Core Information and Exchange

Mr. Greg A. Paul, Lockheed Martin Tactical Aircraft Systems, discussed PAS-C which is a PDES, Inc. application protocol suite for composites, a project for the Air Force ManTech. The objective of the project was to reduce the cost of composite parts by standardizing product data and reducing the interpretation/communication time.

Mr. Paul discussed the Standard for the Exchange of Product Data (STEP) and AP232 which is an extension of the original data model. He mentioned that there is currently a STEP standard for exchange of 2D and 3D drawings. He summarized the uses/benefits of STEP AP232 as the following:

Represents both commercial and Government requirements for the information and functionality of associated lists.

Provides an expedient migration path into STEP for enterprises and industries with document based management systems.

Accommodates both a product item based and a document based configuration identification capability.

Improves the data retention/archival processes.

Allows technical data which is computer interpretable to be exchanged.

Enables effective automation of business processes associated with product data.

In summation, Mr. Paul emphasized that the standard represents both Government and industry requirements and is based on TD package exchange, Product Definition Management (PDM) System implementation, and document or part view of product information. The standard is progressing through the ISO process and has had extensive review by the US and international Government and industry personnel.

Intelligent Product Data (IPD)

Ms. Ann Minniti, Logistics and Engineering Operations Directorate, CECOM, defined and discussed intelligent product data. She defined IPD as "the native CAD/CAM/CAE databases that contractors create, use, and maintain to directly support design, manufacturing, testing, and maintenance via simulation".

Ms. Minniti emphasized that industry uses IPD as a tool and has developed the technologies and processes needed to effectively use and manage intelligent data. The DoD, on the other hand has not use this tool and has paid in both time and money.

The new DoD and Department of the Army (DA) guidance calls for the use of modeling and simulation to support design, engineering, and logistics functions. CECOM is acquiring a means to access and use intelligent product data via Product Data Management commercial software. Ms. Minniti discussed CECOM's initiatives.

She concluded with a synopsis of the SINCGARS pilot project.

Computer Aided Requirements System (CARS)

Ms. Carol Sitroon and Mr. Paul Miskovich described CARS, a paperless procurement package input system. The system allows for multiple users, flexibility for various business processes as well as accountability for work projects. Ms. Sitroon emphasized that CARS was all inclusive from the electronic document images (TD package) for engineering to the certification data for procurement.

CARS is intended to: provide "push button" technical and engineering data on demand; provide access, both local and remote; provide quality support; reduce ALT/PLT throughout the Army; and improve quality and timeliness of technical data.

Workshop Overview

The Workshop Chairpersons presented a brief overview of the previous days' activities.

GENERAL SESSION - 05 December 1996

Opening Remarks

The meeting was opened by Mr. Jim Knowles, who introduced Major General Beauchamp, Deputy Chief of Staff for Research, Development, and Acquisition, HQAMC. MG Beauchamp emphasized the importance of the work the group was doing and indicated he would support the group in anyway he could.

After introductions, the Workshop chairpersons began their presentations.

The Future Role of Repositories

Mr. Paul Miskovich presented the workshop briefing. The briefing detailed the working groups immediate requirements, short and long term goals. The immediate requirement was funding for maintenance and operation of the repositories, digitizing legacy data, and improving network connectivity between the repositories.

The short term goals established by the working group included reviewing the modes of operation at the various repositories, reviewing the data elements and reconcile JEDMICS and the Defense Data Dictionary, and exploit JEDMICS. Following the review of the modes of operation, the long term goal was then to establish data ownership policy.

MG Beauchamp discussed his view of the Army repositories. A repository is an electronic library at a central location where data is stored and retrieved electronically and that multiple sites were not necessary. He indicated that there was a need to "harmonize" the process of gathering and storing data across AMC using networking, etc.

He asked the working group to determine how much and for what period of time funding for the repositories was needed and how many repositories were needed in the future. He indicated that there is a need to establish a case for funding the repositories.

Acquisition Reform

Mr. Phil Gilbert presented six issues that were discussed in the workshop and the recommendation of the participants. The issues discussed included the following:

Should greater use be made of leasing instead of buying?
Performance specification alone or in the absence of TD is not always "Best Value"
Acquisition strategy frequently does not consider life-cycle technical data needs
Need for TD is more than just logistics support
Success of electronic data initiatives supports smart usage of TD, yet emphasis is on performance specifications, not detailed data
How is performance verification of multiple configurations done with limited testing without access to TD?

MG Beauchamp commented that TD is a main line, integral part of acquisition reform. Two important issues to keep in mind are: life-cycle affordability and modernization through spares. TD is significant to both issues.

New Business Process Utilizing Intelligent Data

Ms. Sitroon and Mr. Uldrich reviewed the ten recommendations of the workshop. The recommendations were as follows:

Data requirements should be consistent with acquisition strategy.
Access to contractor formatted data is preferred
Access data from start of program
Flexible automation infrastructure is necessary
Role of Government repositories needs to be redefined
Store data where it makes sense and access electronically
Establish Command workshop and continue with AMC workshop
Do not standardize business processes
Develop handbook for training
Identify standard messages and define content

MG Beauchamp agreed that future workshops would be beneficial based on the results presented to him.

Data Exchange

Mr. John Montgomery discussed the 11 issues raised by the workshop and the recommended actions that need to be taken. The 11 issues included:

Data standards
Tools for multiple formats
Data transport media/methods
Access control/security
Currency of data
Infrastructure requirements and availability
Data formats vs usage
System interfaces
Slowness of automation systems
CITIS compatibility with MSCs and other CITIS - Global data

MG Beauchamp agreed with Mr. Montgomery in that the military must position itself to manage the future rather than cope as it is doing now. Vendor certification will be a major factor in the future. Program stability, in terms of resources, is necessary for developing a rational system.

Role of Technical Data

Mr. Mike West discussed the questions raised by the workshop, specifically What data is value added?, What is the purpose of the data?, and What is the future of TD? The participants concluded:

There is a need for TD
Effectiveness of TD management starts with acquisition and sustainment strategies
The level of TD depends on achieving a balance of factors: cost, risk, acquisition, etc.
Multiple data formats and transfer approaches are cumbersome and inefficient
Current structure dilutes accountability of PMs for TD decisions
IPTs must be trained in latest technology on data acquisition

MG Beauchamp commented that the role of Government business processes have changed but the role of TD has not. In light of the future modernization efforts, TD will be even more important in the future. He offered AMC as a platform to market the use of TD throughout Government and industry.

Open Discussion

MG Beauchamp chaired the remainder of the meeting, answering questions from the audience. He reiterated that the defense budget has been reduced significantly and this trend will continue. In spite of AMC's limited time, money and talent, he will do what he can to support the efforts of this workgroup. He expressed his enthusiasm for the work they are doing.

When asked what he saw for future actions by this group, he replied:

Synthesize results of the group - possibly establish an IPT to study recommendations and develop a Master Plan

Establish a timeline of short and long term goals

Prioritize the goals and estimate funding requirements

Estimate funding (for a three year period) to bring legacy data into the system

WORKSHOP DISCUSSIONS - 03-04 December 1996

Future Role of the Repositories

ACTION ITEMS:

1. Funding for Operation of Repository functions
2. Funding for Maintenance of JEDMICS.
   AMC will provide central funding for repository's maintenance and operation.
   AMC needs to fund repositories. Needs a budget line.
   Request funding from PM for the repository operation and maintenance of specific system (viewer, etc.) before the data is turned over to repository - gives the repository time to budget for the specific system.
3. Ownership of information/security.
   Short term- determine modes of operation of various repositories.
   Long term - establish data ownership policy.
   Repositories do not own data. Repository is a library of data.
   Owner is the one who has authority to change data.
   Each end item manager owns the data, PM monitors, via the repository who has access to the data.
   Government takes ownership of data (via contract) from a contractor going out of business.
4. How many Repositories are necessary and Government v. Contractor Repositories
   Five repositories in place are needed. Are Government and Contractor repositories necessary?
   Link to funding - Each repository should have two backups - Backup every month (new data only or all data)
   High speed corporate repository network - 5 repositories.
   PMs pay for link to the contractor repositories.
5. What kind of responsibility should be placed on the Repository.
6. Interface standards for internal Government information flow and contractor to Government information flow (Networks, global contract changes for contractor data transfer and DIDS)
   Immediate action - review data elements and reconcile JEDMICS with Defense Data Dictionary
   Push for approval of Interface Standard 2549
7. Legacy Data (digitization, storage, use by Depot and FMS)
   Can't get out of the aperture card business while there is abundance of legacy data.
   House keeping needed. **AMC to fund digitizing legacy data.**
8. Standardize the process and costs for Depot access to engineering data.
   AMC corporate data should be available at no cost.
   Standardize operation at repositories.

AMC needs to present to the PEOs/PMs, once a year (no later than the second quarter), the services provided by AMC. Maybe a web page, presentation, etc.

COMMENTS/ISSUES/QUESTIONS:

If data is developed that the Government does not own the data rights to, is the contractor facility a Repository? What if the Government does claim ownership and contracts to have non-Government storage, is the contractor facility a repository?

If the contractor maintains the engineering data and configuration then what does the Government do when it needs to repair hardware? If the Government needs to do repair then it needs control not only access to the tech data but also the configuration.

There exists an AMC wide lack of interface standards for repository/contractor import/export of data.

The engineering community needs access/connections to situs to do his tasks, connectivity issues for electronic transfer and access to data creates problems for production engineering efforts. Is there a need to standardize access for all Repository sites? In cases where the business process exists and the repository grows together with it, an AMC standardized business process can cause massive internal changes the may be detrimental to the MSC. As you add more business processes, the MSC relationship with the Repository becomes more complex making standardization more difficult. As long as the Repository is meeting the customer's needs, the Repository and MSC are best situated to determine what processes to utilize although substantially similar business processes should remain optional.

What is the best method to prevent contractor databases from delegated the terms of information access. The underlying issue is that each Government contractor maintaining Government data will have different access control requirements, formats and business operations. Can the Government repository control this so that it can easily get data from the contractor in a timely and uncomplicated manner? How do you prevent the contractor from saying the Repository "here is the electronic interface, just plug in"? Does this get resolved contractually, if so what clauses?

What happens at the Depot level when they can't get the drawing and configuration information they require? Can Internet access to digital images be provided? Can access to CM programs be provided to determine most recent configuration? Should the Repository maintain historic configuration information for the Depot? Will it solve the problems or do the Depots need to have more internal controls? The Depots now make an aperture copy from their drawing file and they can go to the Repository for an aperture card. Access to digitized images is also available but due to cultural barriers this access is rarely used. A problem of cost arises when a Depot requests a drawing from the Repository. The issue is that Repositories are quickly moving to digital data only. If legacy data is required for the Depot it must be digitized and QA checked before it is loaded into the JEDMICS. Should the Depot or Repository pay the bill? What about the same situation for FMS procurements of legacy systems?

Issue of legacy data. What do you do with it? Why does the Repository continue to store hard copies if the image is already digitized? Generally the duplicates are disposed of immediately, other activities have ceased making new cards for storage but the card repository will continue to exist until the availability of the individual's images is confirmed. In light of diminishing resources this is a low priority process. There is also a cost associated with validation of the image data base. CECOM recalls that at one point each Repository generated a list of legacy data based on depot requirements. A cost was developed and provided to AMC but no result. This occurred several years ago and they remember that this was not a Depot issue but rather an AMC funding issue to digitize legacy drawings.

What information should be stored in the Repository JEDMICS. Can the Depot DMWR be considered technical data and loaded into a Repository? The answer is that it might not be considered technical data but it is corporate data and the Repository is moving toward storage of any corporate data that a customer wants stored. In STRICOM, whatever information the customer needs to do his job is stored as a digital image. ARL is putting DIDs and contract data on JEDMICS. STRICOM currently has a contractor hold "contract data" and engineering data by contract at a contractor site. There is a general willingness among the MSC Repositories to load and maintain whatever data the repository will bear. Savanna Depot is making efforts to store digital ammunition safety data at the IOC Repository. Explosive Safety Data has been neglected, now Savanna and Tooele are storing such data including palletization and safety instruction, facilities drawings, and equipment drawings into the IOC JEDMICS. Other customers are looking to store lab reports, test reports and solid model data on JEDMICS.

Should a Repository keep new drawings as Intelligent Data in a separate parallel database if it is in the best interests of the customers. What about coordination between Repositories for Intelligent Data, what application should be used (AutoCAD, FORMTEC)?

Discussion: Will there be an Army Architecture for IDE with access to all JEDMICS and CM systems? This will breakdown MSC "ownership" of data and provide the information to whoever has a need. Who is working on it and what can be done today to get us closer to IDE?

Can the MSC Repositories agree on a common CM system? If so, how would this work? Who would fund the conversion? What about training? Any common system needs to have a controlled baseline to be interface compatible. But remember that the software must come with training and support.

Should there be web access to data? Yes, for corporate data and profile data on people and sites as long as in compliance with DoD Directives and Public Law.

Since there is a JEDMICS at a depot is it a Repository? No. The IOC HQ representative and Mr. H. Killian stated they recommend getting together with the Depots to work out these issues. Why does a Depot have a JEDMICS when the data belongs to the IOC Repository. Why do the depots get regular updates? They already have access through JEDMICS. If images are already stored somewhere, then why should the DEPOT store information?

Discussion: For problems where the contractor maintaining the technical data habitually delivers it in an unacceptable format what do you as the repository do? Force the contractor to comply. STRICOM has this problem. TACOM has this problem with regard to differing business processes that require different update formats for its TD/CMS.

PM EDMS states that the MSC Repository maintains the data where the drawings are stored. If the Depot needs access they should access, download it and store it temporarily but not run it as a parallel database. This is against DoD directives as the MSC Repository is the Repository of record for the data. Furthermore, ECPs are provided only because the PM contracted to send the Depot a copy. If a Depot does not receive an aperture card this does not mean that the configuration has not changed.

Control and access: Why do some MSCs completely restrict access? It is possible to build profile in JEDMICS to selectively limit access to data. Only the systems administrator and those already with access can get in. Why? Because it is intellectual data created by the originator and the Repository does not want to give it away.

What types of problems are associated with running the Repository as GOCO? Problems: 1) Data Rights Disclosure; 2) Contract turnovers; 3) Contractor personnel turnovers. Repositories may be moving in that direction as you can contract around these problems.

If the Repository is the dedicated MSC data storage facility, then can you have a secondary site that runs in sync so that a second site becomes the functional and the repository the archive and then each week the sites check each other? The answer is that it seems acceptable and you have your choice of which database to use for which purpose. One being an archive and the other being a functional Repository.

Regarding aperture cards for classified, how are you going to handle it? CECOM admits that it does not have a secure media to store the data to download. TACOM has not yet addressed this issue. What about Fortasia cards? PEO Tactical Missiles is moving away from the Internet to dedicated lines. Admittedly there is a higher cost in the PEO effort.

Acquisition Reform

Although all agreed with acquisition reform, many workshop attendees felt that a total life cycle approach towards performance based acquisition to include contingencies to accommodate second sources, if cost reduction initiatives are not achieved and when technologies evolve encourage spares insertion and modernization by multiple sources. The consensus was however, that the role of technical data as it

relates to performance specification is typically misunderstood. Performance specifications and technical data compliment one another not compete or replace the other.

The workshop began with the premise that the intent of acquisition reform was to minimize control of data, institute a move away from military specification and standards to known industry standards and use performance specification as a means to obtain best value. The mandate: to manage fewer resources even more wisely and continue to give the soldier first class traceable, identifiable and reliable products. Technical data is required to comply with this mandate.

The role of technical data was addressed in two areas: existing available off-the-shelf commercial data for non-developmental items and the industry technical data developed and paid for by the Government. Both data types were evaluated with a general consensus that if the Government pays for data and/or has data rights to data, the Government as industry should use and access the data based on needs. It was agreed that in the present world of electronic data interchange, industry advances in fast technology of computer processors and mass storage capabilities, the wise use and application of technical data in a performance based environment is required.

The working group defined the role of technical data to: support the integrated product process teams; to support competition; modernization through spares; traceability of fielded and serialized items; foreign military sales and co-production initiatives; and as a partner to performance based specification, control and insight.

The group concluded that the world of electronic data and acquisition reform go hand-in-hand. The current misperception that product data is not needed under acquisition reform and performance specification is incorrect. In fact, in the absence of military specifications and standards, technical data is more essential although the manner in which it is accessed, controlled, and used may be somewhat different.

This difference changes the past practices of configuration and data management activities. These now must take on more of a product data management and process role that rely heavily on electronic data interchange and CD ROM type technologies. This requires a cultural change in that Government and industry must become more capable with using electronic data.

The technical data manager must realize paper is now file(s), manila folders are now electronic window folders, and viewing and redline applications are now Government and industry teaming with the use of industry software tools.

As an example, of one type of application under acquisition reform, JAVELIN was discussed. The current program strategy is thought to be a smart application of acquisition reform with little risk to the Government. Some of the major points were:

The requirements are performance based. The contractor controls the technical data package that is accessible to the Government electronically. Change control is largely by block change with Government and contractor CM leaders working together. Value Engineering is accomplished through cost reduction initiatives and contract incentives and continues to be an area that needs further emphasis under performance based acquisition.

Logistic significant items are required to be interchangeable and interface with compliant performance within their next higher assemblies.

The team approach with Government and contractor personnel is used to manage the program and resolve problems. CM emphasis is on performance compliance and process control, a cultural shift from mass inspection of data to electron data usage and teaming. Product integrity is centered on appropriate qualification and emphasis on interchangeability and insertion vs. the need for continuous identical items. The balance of customer and supplier control is through block insertions to the maximum extent.

RECOMMENDATIONS:

1. Lease more products such as computers when that is the best value.

2. Address the need for technical data by the PEO/MSC/PMs as part of the acquisition strategy and look at the life cycle, including the need at the present and in the future for competition, to support the IPTs and the transition from the PM to the MSC. Maintain a total loop of communication and coordination as updates to the strategy occur.

3. Business processes govern the need for computer support. Business processes are not held hostage to computer applications.

4. Reestablish or reaffirm that the TDP as an electronic non-military specification baseline is essential but the control of the TDP should be tailored to the minimum. Access to the performance and/or product baselines are essential to both the customer and supplier regardless of the control strategy. In many cases the wise use of a non-military specification is best value and typically performance based.

5. Technical data is the core and essential element to all disciplines. Its electronic means makes the application even more efficient. Reaffirm that acquisition reform is not limited to the use of performance specifications but was intended to reduce reliance on military specifications and standards and institute a new way towards the control and usage of data.. Other initiatives such as the use of electronic data supports the idea of less control and more mutual insight to the best business practices in and out of the Government.

6. Reaffirm that the TDP is not or was not a problem. The problem was how the TDP was controlled and the reliance on military specifications and standards. This reliance on groves of military specifications and standards stifled industry towards unique military applications. An electronic industry standard TDP that meets the needs of the Government may in fact support logistics and competition better. The problem is the misinterpretation that any non-military specification TDP is of no value and in contrast all elements of the traditional TDP were of no value.

New Business Processes Utilizing Intelligent Data

The first day of the workshop was spent trying to define “intelligent data,” and explaining how it differs from “dumb data.” This proved to be far more challenging than had been anticipated. Opinions varied greatly depending on each group member’s professional background and individual work experience. It was apparent that information necessary to an engineering decision would not necessarily be useful to a budget analyst’s work process. This led to a discussion of and general agreement on how the “intelligence” or “dumbness” of technical data is driven by the end user. One definition for intelligent data that resulted from this exchange was, “information that can be applied for analysis or as a basis for a decision.”

Initially the group quantified and categorized types of data. A list was created covering about forty items including CAD/CAM type data, cost, materials, thermal resistance, etc. Each item was scrutinized and challenged by the group members.

The group also discussed the relative importance of archived technical data changes as the predominant acquisition strategy changes. Until recently, cost was considered somewhat flexible, and not necessarily a critical consideration to the engineering process. But, with restrained budgets driving current acquisition policies, cost is now considered a fixed independent variable to the engineering process. Factors such as design, material, performance, etc. function as dependent variables. It was concluded that future changes

in acquisition strategy must be considered while selecting data for archiving. Otherwise, data important to future requirements may not be preserved because of current non-valued status.

The second day was spent brainstorming recommendations and preparing the presentation. The outcome was as follows:

RECOMMENDATIONS:

1. Data requirements should be consistent with acquisition strategy and any changes to data should be reflected in the acquisition strategy and vice versa.
2. Access to contractor formatted data is preferred method and delivery at the end of contract if it makes sense.
3. Access data from start of program.
4. Recommend Automation Infrastructure be flexible enough to adapt to continuously improving Business Processes.
5. Redefine role of Government repositories.
6. Store data where it makes sense and use PDM to access/control/manage it.
7. Have workgroups of this type done at each command for their acquisitions and then have the results of these groups brought to an AMC workgroup for discussion.
8. Do not dictate use of standard business processes (one size does not fit all), but standardize interfaces for exchange within Government.
9. Develop handbook on how to acquire electronic data to support the business process.
10. Identify standard messages that are required, and define their content to use in data exchange.
    ex. X12 transaction sets (EDI)
    ex. Step 232 (exchange messages)(how you package the technical data)
    -PDM systems.

The workgroup debated the necessity of Government run repositories. Generally, it was not considered essential for the Government to own <u>all</u> pertinent technical data for a weapon system. However, the Government must be allowed access to the data to allow future engineering changes and competition. One proposed solution was to allow the original data to be maintained by the contractor with a virtual repository pointing to where the information is located. Contractual arrangements can be made to procure the information in the eventuality that the contractor goes out of business.

Data Exchange

The Chairman asked each the participants to name the most critical issue he or she can identify. The issues were listed and then discussed. The list was limited to the top ten issues.

The issues were:

1. Data standards (no comprehensive tech data standards (eng., CM; no standardized CITIS data)
2. Tools for multiple formats (viewer, conversion, storage)
3. Data transport media/methods (multiple formats)
4. Access control/security (data aware, approval/signature, distribution restrictions)
5. Currency of data, e.g., specs (access to CM data)
6. Infrastructure requirements and availability
7. Data formats vs. usage (life cycle from development to sustainment) (common denominator? What to buy? Continuation of Operations Plan (COOP)?)
8. System interfaces (gov't and primes, e.g., CITIS)
9. Slowness of automation systems upgrades (politics, resources)
10. CITIS compatibility with MSC and other CITIS (no standard CITIS, transfer of data)
11. Global data (LCN vs. other ID)

There was a discussion for each issue and a list of existing technologies or current status was identified. The second phase was to discuss and list the available options/recommended actions for each issue. The issues, and recommendations are listed in the workshop briefing.

The Role of Technical Data

The workgroup set out to evaluate the current and future role of technical data. The following topics were presented and discussed at length:

1. What is technical data?

Data necessary to describe, manufacture, procure, field and support the qualified design of a configuration item.

2. What is the purpose of the data?

Spare parts procurement
Maintenance/overhaul
Provisioning
Explosive Ordnance Disposal (EOD)
System operation
Qualification/acceptance of product design/parts
Modernization
Engineering Support

3. What data is still value added?

All elements of technical data have value. However, all elements are not necessary for all systems. Technical data requirements should be tailored to the system. Type of data depends on the acquisition and sustainment strategies.

4. What is the future role of technical data?

The future role of technical data remains the same. It will continue to provide the customer the necessary information to ensure a usable quality product. However, current Government business processes are changing.

In addition, the topic of training was discussed. The group concluded that an automated system does nothing to improve technical data if the personnel using/accessing the data are unable to use the automated system properly. The point was made that all systems come with training and personnel changes may be the main cause of the inability to access data.

Several other issues were addressed during the workshop. They include:

Issue: Technical data is driven by the availability of funds versus a consideration of life cycle impacts. The level of TD bought depends on achieving a balance of factors - cost, risk, type of commodity, acquisition and sustainment strategies, etc.
Recommendation: Guidance should require that program TD decisions and acquisition be shown to be consistent and support the life cycle sustainment of the deployed configuration item.

Issue: Should the Government have ownership or access to TD? Several problems with access only data were identified:

Data may be lost if a small contractor providing the data goes out of business.

Data provided by one contractor can not be transfer to another contractor. How are interface requirements dealt with?

Data purchased is frozen, how is the latest technology incorporated into the fleet.

Recommendation: Acquisition strategy should govern this decision

Issue: Multiple formats are cumbersome and inefficient. The format of TD is a key concern. Various data formats become a problem when only data is contractor owned and accessed remotely or delivered in an unfamiliar format.

Issue: Lack of "guidance" on ownership versus access of data. The issue of TD guidelines versus actual direction was discussed. It was agreed that there is a crucial need for a template or matrix to aide in the access versus ownership decision. This matrix must be used during the acquisition phase and take into account the complete life cycle of a system.

The results of the discussions lead to the following general recommendations - There is a need to

Establish a set of metrics for TD
Develop the direction for program TD decisions and acquisitions that are consistent and support the life cycle sustainment plan of the deployed configuration item.
Develop guidelines/templates on when ownership of data should be procured versus access only.
Increase emphasis on Program Manager IPT training.